SWACSM Abstract

Reliability of Arterial Occlusion Pressure Measurements Using Two Difference Cuff Inflation Protocols

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ABSTRACT

Although previous studies have used two different cuff inflation protocols to measure AOP, no studies have reported the reliability of AOP measurements using both protocols. **PURPOSE:** The purpose of this study was to evaluate the reliability of two measurements of AOP in the superficial femoral artery using two different cuff inflation protocols. **METHODS:** Ultrasound (GE LOGIQ) was used to detect blood flow through the superficial femoral artery of both legs in 20 males and 20 females. The AOP of the artery was measured twice in each leg. The artery was occluded using a continuous (CONT) cuff inflation protocol in one leg and an increment (INCR) cuff inflation protocol in the opposite leg. The CONT protocol involved inflating the cuff to 50 mmHg then continuously inflating the cuff at a rate of 10 mmHg/10 s until blood flow could no longer be detected using the ultrasound. The INCR protocol involved initially inflating the cuff to 50 mmHg for 30 s, and then deflating the cuff for 10 s. The cuff was then inflated incrementally with each subsequent inflation increasing by 30 mmHg for 30 s followed by deflating the cuff for 10 s. Once blood flow was occluded, cuff pressure was decreased in increments of 10 mmHg until there was evidence of blood flow. The cuff was then gradually inflated until blood flow was no longer detected. The pressure at which blood flow could no longer be detected was recorded as the AOP. The data were analyzed with a mixed model analysis of variance while maintaining a family-wise *p*-value of 0.05. **RESULTS:** The difference in the two measurements of AOP using the CONT and INCR cuff inflation protocols in males (0.9 ± 5.4 and 0.5 ± 5.1 mmHg) and females (1.9 ± 11.4 and 2.3 ± 12.2 mmHg), or when combining the data from males and females (0.4 ± 8.9 and 0.9 ± 9.3 mmHg), respectively, were not statistically significant. The correlations between the two measurements of AOP using the CONT and INCR cuff inflation protocols all exceeded 0.99. **CONCLUSION:** Measurements of AOP using a continuous or increment cuff inflation protocol are highly reliable. Either cuff inflation protocol can be used when making multiple measurements of AOP.